

In the Claims

Please amend claims 1-3, 7, 9-11, 26, and 28 as follows.

1. (Once amended) A method of fabricating a bioelectronic component, the method comprising the steps of:

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- a. providing a batch of nanoparticles having submicron sizes and an electrical characteristic;
 - b. attaching at least one biological material to the nanoparticles so as to form shells of the biological material therearound;
 - c. depositing the nanoparticles onto a surface; and
 - d. causing the deposited nanoparticles to be in electrical communication with at least one electrical contact to facilitate an electrical measurement thereof, the electrical measurement being affected by the biological material.

2. (Once amended) The method of claim 1 in which the nanoparticles are caused to be in electrical communication with said electrical contact by self-assembly.

3. (Once amended) The method of claim 1 in which the nanoparticles are caused to be in electrical communication with said electrical contact by electrostatic assembly.

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7. (Once amended) The method of claim 1 wherein the component is a transistor comprising a source element and a drain element and a semiconductor layer disposed between the source and the drain elements, and depositing the nanoparticles onto a surface comprises depositing the nanoparticles onto the surface of the semiconductor layer.

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9. (Once amended) A method for fabricating a bioelectronic component, the method comprising the steps of:

- a. providing a first batch of nanoparticles having submicron sizes and a first electrical characteristic;
- b. depositing the first batch of nanoparticles onto a surface;

- c. sintering the first batch of nanoparticles to form a continuous, uniform layer exhibiting the electrical characteristic of the first batch of nanoparticles, the layer having a surface;
- d. providing a second batch of nanoparticles having submicron sizes and a second electrical characteristic;
- e. attaching at least one biological material to the second batch of nanoparticles so as to form shells of the shells of the biological material therearound;
- f. depositing the second batch of nanoparticles onto the layer surface formed by the first batch of nanoparticles;
- g. causing the deposited second batch of nanoparticles to be in electrical communication with at least one electrical contact to facilitate an electrical measurement thereof, the electrical measurement being affected by the biological material.

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10. (Once amended) The method of claim 9 further comprising the step of forming an electrical contact according to steps comprising:

prior to steps (d) – (g),

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- i. providing a third batch of electrically conductive nanoparticles having submicron sizes;
 - ii. depositing the third-batch nanoparticles in contact with the layer derived from the first batch of nanoparticles; and
 - iii. sintering the third-batch of nanoparticles to form the electrical contact,

wherein the subsequently deposited second batch of nanoparticles is caused to be in electrical communication with the electrical contact.

11. (Once amended) The method of claim 10 further comprising the steps of repeating steps (a) – (g) and (i) – (iii) at a plurality of locations on a substrate to form an array of bioelectronic components.

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26. (Once amended) A method of fabricating a bioelectronic component, the method comprising the steps of: